E

JPRS: 4930

1 September 1961

# SELECTED TRANSLATIONS ON EAST EUROPEAN MATERIALS INDUSTRIES

No 8







U. S. JOINT PUBLICATIONS RESEARCH SERVICE
1636 CONNECTICUT AVE., N. W.
WASHINGTON 25, D. C.

# F O R E W O R D

This publication was prepared under contract by the UNITED STATES JOINT PUBLICATIONS RESEARCH SERVICE, a federal government organization established to service the translation and research needs of the various government departments.

SUBSCRIBING REPOSITORIES

SS-E

Boston University
725 Commonwealth Ave.
Boston 15, Massachusetts

Univ. of British Columbia
Vancouver 8, Canada

General Library
University of California
Berkeley 4, California

Russian and East European Center
University of California
Los Angeles 24, California

The Russian Institute
Columbia University
431 West 117th Street
New York 17, New York

Council on Foreign Relations, Inc.
58 East 68th Street
New York 21, New York

Duke University Library
Durham, North Carolina

Florida State Univ. Lib.
Tallahassee, Florida

University of Florida
Gainesville, Florida

Harvard College Library
Cambridge 38, Massachusetts

The Hoover Institution
Stanford University
Stanford, California

Indiana University Library
Box 248
Bloomington, Indiana

State University of Iowa Lib.
Iowa City, Iowa

Joint University Libraries
Nashville 5, Tennessee

University of Kansas Library
Lawrence, Kansas

Michigan State Univ. Lib.
East Lansing, Michigan

Univ. of Michigan Lib.
Ann Arbor, Michigan

Univ. of Notre Dame Lib.
Notre Dame, Indiana

Ohio State Univ. Libraries
1858 Neil Avenue
Columbus 10, Ohio

University of Oregon Lib.
Eugene, Oregon

Penn. State Univ. Library
University Park, Penn.

Univ. of Pennsylvania
Philadelphia 4, Penn.

Princeton University Lib.
Princeton, New Jersey

Univ. of Southern Calif. Lib.
University Park
Los Angeles 7, California

Syracuse University Library
Syracuse 10, New York

University of Vermont
Burlington, Vermont

(Continued)

Alderman Library
University of Virginia
Charlottesville, Virginia

Yale University Library
New Haven, Connecticut

Wayne State Univ. Libraries
Detroit 2, Michigan

Univ. of Washington Library
Seattle 5, Washington

JPRS: 4930

CSO: 1857-S/8

# SELECTED TRANSLATIONS ON EAST EUROPEAN MATERIALS INDUSTRIES

No 8

This is a serial publication containing selected translations on the fuel, electric power, mining, metallurgical, and construction materials industries in Eastern Europe.

TABLE OF CONTENTS | Page

CZECHOSLOVAKIA

# THE DEVELOPMENT OF A FUEL BASE IN THE CZECHOSLOVAK SOCIALIST REPUBLIC

/Following is the translation of an article by Karel Bystricky and Vladmimir Farka in Uhli (Coal), Vol III, No 1, pages 24-27./

1961

The development of a fuel base has gone through several stages; the relations between mining output and consumption reflect these stages. This article deals with the current tendencies of the development of consumption and divides them into the stages leading toward the goal of utilizing the experience gained in planning.

During the last fifteen years the Czechoslovak Socialist Republic has successfully solved the main problems of the transition period from capitalism to socialism. This period was characterized by a fast growth rate of productive forces, especially industry, which has proven to be faster than the growth-rate reached in the most developed capitalist countries. While in the Czechoslovak Socialist Republic industrial production from 1950 to 1959 rose 2.5 times, production in the GDR in the same period rose 2.3 times, in France 1.8 times, and in the US only 1.4 times. Thus the CSSR has surpassed in per capita industrial production certain advanced capitalist states, and has reached the same level as Great Britain. The size of the results attained is manifested mainly in the development of Slovakia. During the whole period of the capitalist republic there was an obvious lag in the development of Slovakia in comparison to the Czech countries; its part in total industrial production was only 10%. Through the victory of the working classes, conditions for a faster development of Slovakia were created; because of this, its part in total industrial production will be increased in 1960 to nearly 18%.

The development of industry is characterized by an increase in the technical level, in the newly built plants, and in the reconstruction of existing plants. This is evident in the growth in labor productivity. Thanks to greatly increased investments and technical reconstruction, the equipment of the workers has been increased through basic productive funds and through electric power. But even with a six-fold growth of electric power production in 1960 (in comparison to 1937) its rate is insufficient compared to the rate of growth of industrial production; and in this field the CSSR has a ratio which is worse than those of the most developed capitalist states.

The coal industry held an important position in the successful development of the national economy because coal is practically the main source of power; its part in total simple forms of power now stands at approximately 90%. During the last fifteen years, a total of 314 million

tons of coal has been mined; this is 100 million tons more than had been mined during the same period in the first republic (1922-1937). As far as brown coal is concerned, we have mined 547 million tons, which is double the material mined during the same period in the first republic.

Even with the high and nearly uninterrupted growth of coal output, the coal industry began to fall back in 1949, in contrast to the growth of the other branches of the national economy. This became especially noticeable in the years of the First Five-year Plan and was caused by an unfavorable development in black-coal mining. After significant decisions of the party and the government, the growth of mining increased after 1954. Therefore, in 1958 we were able to succeed in safeguarding the needs of the national economy quantitatively and to outstrip the need for brown coal. At the same time it was necessary, for a number of years after the Liberation, to change gradually the relations between output and consumption which had evolved during the capitalist period.

Development since the liberation

In 1945 our economy took over the coal industry, which was in very bad condition. Deep-well mines did not have reserves prepared for mining, mining installations were obsolete, and the construction of new mines was uncertain.

Looting of coal reserves, insufficient preparation, departure of war prisoners and compulsory workers, and other conditions effected a sharp drop in output and a very serious supply situation. In 1946 the output of black coal still equalled only 80% of the output of 1937.

Therefore, the Two-year Plan's main directive called for the output of coal to reach as quickly as possible the pre-war level. In the case of brown coal, this goal was reached in 1947; in the case of black coal, in 1948.

The failure to fulfill the goals of the First Five-year Plan in coal output, along with an increase in the needs of crucial consumers, had created a serious situation in the coal supply of the national economy. The situation was solved through the import of black coal, whose volume was sharply increasing; in 1953 it had reached 4.7 million tons. In the following years it decreased slowly; in 1957 it decreased to roughly one-half, and it has remained at this level to date. During this most serious supply situation we were aided by the USSR with extra deliveries of black coal. Roughly during the same period the orientation of black-coal mining toward coking coal began, as did the brown-coal mining toward the supplying of the fast-growing power needs.

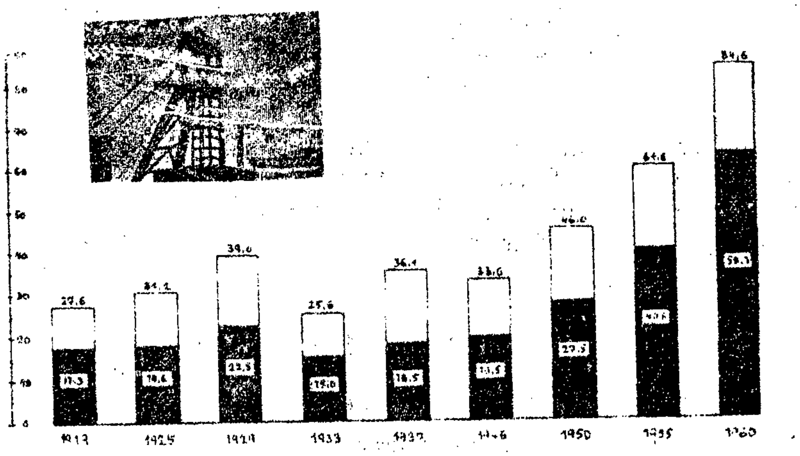
Even though the black-coal output has been steadily rising since 1954, the development of the output of brown coal was actually faster. This was because of the development of quarry mining and, after 1954, as a result of the introduction of interrupted production in the quarries of the Most coal fields and the Sokolov coal fields.

Thus there has been a gradual change in the structure of the fuel base because of brown coal, whose part in the total output of coal has risen from 57% in 1945 to nearly 70% in 1960. (Graph No 1).

Because the development of brown-coal mining has been secured primarily through quarry methods, there has been a gradual change in the assortment; thus, there has been a decrease in the portion of classified types, and the production of dust has increased. This condition was worsened by the insufficient capacity of the preparation plants, especially in the SHR fields, where the quality of the coal had been influenced by the mining of seams, which were formerly mined by deep-well methods. As a result, it was necessary to deliver the mined coal to the railroads and to the populace, although it is unsuitable for such purposes; it was thus utulized with less efficiency.

The situation in the preparation of the Most fields coal has been somewhat improved by the construction of the central preparation plant for coal in Komorany in 1954. But because of the fast growth of mining output, its capacity, especially that of the washing plant, became insufficient in 1956, and it became necessary to seek another solution through extraordinary measures. At that time it became possible, with the common efforts of the Stalin Works, the SHR fields, and the workers in the fuel consumption sector to solve the situation in such a way that the Stalin Works were supplied with ash-rich coal which had been otherwise processed in the Komorany preparation plant. The capacity thus made available is used for certain mines of the Most fields. In order to secure at least minumum preparation, there have been, especially in the Most fields, constructed simple, provisionary sorting plants. These sort the coal into two to four varieties, so that at least a minumum effectiveness for consumption could be secured.

A serious problem was the outlet for powder coal, of which there were lasting surpluses which had been, up to 1950, systematically deposited. In recent years, an outlet of powder has been found; it was supplied to consumers as a fuel base and was utilized in place of black coal. This fact is especially important in view of the rise of the share of powder coal. While, for example, the Most fields produced in 1945 20% powder coal, at the present this production has risen to 50%, and in the Sokolov fields even to 50%. The securing of an outlet for the powder has been aided by a more advantageous price level and the introduction of premiums for industries which use it.




Graph No 1. The mining of coal and lignite in million tons.
Explanation: The column denotes at the bottom bituminous (black) coal and above is brown coal and lignite.

The mining of black (bituminous) coal did not develop uniformly until 1953. In the four-year period 1950-1953, there was only a small increase of about 600,000 tons, so that the development of the coal industry fell back from the needs of the national economy; there was thus a danger to a further development of productive forces. Therefore the party and the government paid extra attention during this period to the coal industry and launched a number of important measures for the elimination of the lag in the fuel base. Thanks to this systematic help, the mining output picked up and reached an annual increase of roughly one million tons.

The utilization of black coal for coke-chemical purposes was decisively influenced in 1956 by aiding some of the people's democratic states in the development of their metallurgical and coke-chemical industries; this resulted in deepening the international socialist division of labor in the coal industry. While until 1956 the economy of coking coal in the Ostrava fields had been influenced by both the needs of the coke-chemical industry but and the growth of power needs, since that year attention has been centered on obtaining large sources of coking coal.

On the basis of this effort the export of black coal from Czechoslovakia in 1959 had risen nearly three times over 1956. Thus the CSSR became an exporter of solid fuels. At the same time, efforts are increasing to create better coking coal economy and uniform coke quality.

One of the obstacles is the insufficient capacity of the preparation plants in the Ostrava-Karvina district. This resulted in

overworked capacity, a partial loss of coal into gangue, and a fluctuation in the quality of the concentrate. The impossibility to prepare the coal separately according to its coking characteristics causes the imbalance of the mixtures. Also, the ash and water contents do not yet correspond to the requirements for export coke production. Even under these shortages, there has been a sharp rise in the uses of Ostrava coal. While in the first republic we used for technological purposes only about 40% of the mined coal, this use now exceeds 70%.

The change in the mining structure in favor of brown coal, the orientation towards the utilization of black coal for the production of coke, the decrease in the import of black coal in 1957 in one half, difficulties in transportation, and the fast-growing needs of the national economy, especially in Slovakia — these have influenced greatly the supply of the national economy with coal and have also influenced the structure of this supply, as can be seen from the following table:

| in millions of tons | 1946 | 1950 | 1955 | 1960 |
|---|---|---|---|---|
| Consumption of coal in CSSR | 35.2 | 50.1 | 66.8 | 87.5 |
| black coal | 15.3 | 22.1 | 24.7 | 27.4 |
| brown coal (including lignite) | 19.9 | 28.0 | 42.1 | 60.1 |
| portion of black coal in % | 43.5 | 44.1 | 37.0 | 31.3 |

A characteristic feature of the development in the consumption of coal for power purposes (without consumption for the production of coke) is the meeting of additional needs with brown coal, while the consumption of black coal for these purposes has basically remained, within the last ten years, at the level of 15 million tons.

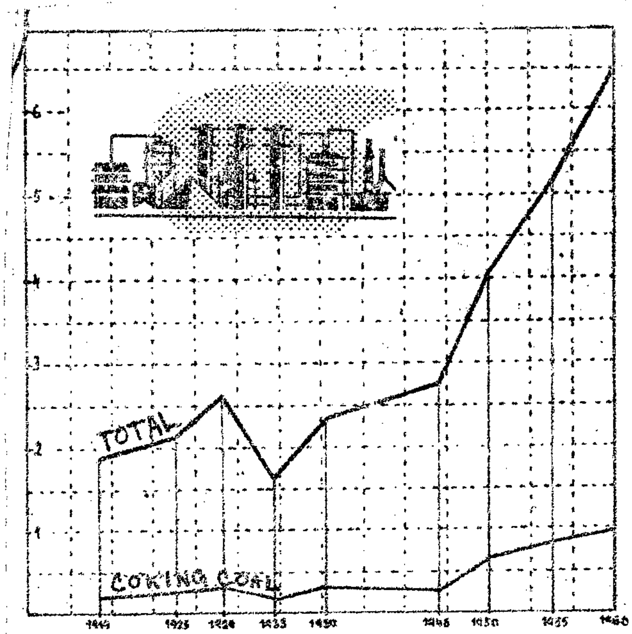
The power needs of industry are now covered by 30% black and 70% brown coal, against 60% and 40%, respectively, in 1946. A crucial part in this change played by the power and heat plants of the Department of Fuel and Power, where the use of black coal had decreased from 50% to 25%. A similar situation occurred in the locomotive industry. The most striking effect of the change was seen in the supply of the population, for whom brown coal became the decisive fuel. The insufficient capacity of preparation plants and difficulties in the supply situation caused a situation where the population had to be supplied with subquality, unprepared coal. Since 1955 the deliveries have gradually improved in quality and quantity; by 1959 the controlled supply was abandoned.

At the same time, there a change was effected in the territorial distribution of coal consumption. The faster development of productive forces in Slovakia than in the Czech regions, necessary for the industrialization of Slovakia, the impossibility of developing reciprocally the output of the concerned areas, and the fact that nearly the entire increase in consumption could be covered by brown coal have created a

high demand for transportation. While in 1948 only 200,000 tons of brown coal were transported into Slovakia, this amount had risen by 1958 to 6.8 million tons, i.e., 34 times the former amount. This has significantly lengthened transportation distances, while in these years the loading of coal cargo from the Most fields has increased by 12 million tons and from the Sokolov District by 9.5 million tons. Serious transportation problems arose which became an obstacle to the further development of mining.

Their solution was aided by consumption organization, primarily through a division of the Most and Sokolov coal, and secondly through the formation of composite trains. The basis of the division is the determination of areas to be served by the two coal districts in such a way that their consumption answers the optimum loading possibilities from both coal districts and that the total transportation distance is the shortest possible. The formation of composite trains aided in the simplification of handling at relay stations and in the speed-up of actual transportation. The realization of the above measures resulted in some of the consumers changing their fuel base; also, as a result of a lowering in the quality of deliveries (Sokolov coal in place of Most coal) there occurred some animosity towards the project in the beginning. These measures are necessary even now, as they aid in the solution of the transportation situation and thus constitute a condition for the development of mining output.

The year 1958 was a milestone in the development of the coal industry. In this year we reached the highest yearly increase in mining production, i.e., 7.4 million tons; out of this 6 million tons were brown coal. This success was reached especially because of the initiative and pledges of the miners, entered into in honor of the Ninth Party Congress. It was therefore possible to satisfy quantitatively the fast-growing needs of the national economy (Graph 2). At the same time, the reserves in industry, in coal storage, and among the population had greatly increased (estimated 4 million tons of brown coal). Thus a surplus of brown coal was gained over the needs of the national economy.




Graph No. 2. Consumption of coal
lignite per one inhabitant in
tons.

If we evaluate the results of the last fifteen years, we conclude that the coal industry has basically fulfilled the ambitious tasks which originated from the development of the national economy. Important successes were reached, especially in the development of the Most and Sokolov coal fields, through a reorientation toward quarry mining. On the basis of this, we not only liquidated the lag of the fuel base behind the needs of the national economy, but also a major part of the needs for the development of a power supply; this in turn enabled the utilization of Ostrava coal for coke-chemical purposes in the CSSR, as well as in some of the people's democratic countries. Most attention was concentrated on securing the needs for an increase in mining output. In the consumption sector, especially during a considerable shortage of machinery, it was necessary to introduce a number of extraordinary measures and to gradually change the relations between mining production and consumption in such a way that they would answer the requirements for building a socialist society. This development was hindered by a lack of quality and preparation; this did not remain without influence on the effectiveness of coal utilization.

The facts gleaned through the analysis of present development were used in the preparation of the Third Five-year Plan. In it one presupposes, from the point of view of consumption, a number of qualitative changes to answer the needs of an advanced socialist society.

Most effort is directed toward the acquisition of the best sources of coking coal, not only through mining but also through a further development of the preparation processes in the Ostrava-Karvina coal district. Great attention is given to economizing in the use of this important raw material source.

The successes reached in the coal industry, the tendency to develop the structure of consumption and the experiences and analyses of current shortcomings are the starting point for determining the long-range direction in consumption. These are indispensable in planning the optimum production and preparation of coal.

# THE INTRODUCTION OF AUTOMATION IN UNDERGROUND MINES IN CZECHOSLOVAKIA

[Following is the translation of an article by Engineer Bohumil Skalka in Uhli (Coal) Vol III, No 4, Prague, pages 117-119]

The problem of automation in new mines.

Two stages are involved in introducing automation into the projects. The first stage is the immediate installation to automation, the second depends on the prospective preparation of introducing automation.

A. The immediate solution.

This stage of introducing automation presupposes an immediate installation of automation in these sectors:

1. Mine transportation should have automation means that would permit locomotive engineers to manipulate the shift signals. This means that the locomotive engineer will be able to estimate the changes from the moving train, at which time the opening of the partitions and air gates will be automatic from the front to the back of the train. Therefore it will be necessary to have a trial installation in some mine. Today, all the elements necessary for this project are already sufficiently developed.

2. There should be a central control system of related work areas from which the power and technological installations will be directed by remote control. Such work centers should direct and control these functions:

a. Main ventilators
b. Compressors
c. Water mains
d. Pumps
e. Boiler rooms and heating rooms
f. De-gasing station
g. Mine ventilation
h. Mine climatization

3. The projects should be equipped with automatic methane control in the principal air currents with remote control broadcasting and signaling of turning points. These continual methanometers are at this time produced at the MEZ [Mechanicko-elektricke zarizeni -- The Mechanical Electric Works] Postrelmov on an infra-analysis principle and in the ZPA [Zavody prumyslove automatizace -- The Industrial Automation Works] Prague on the principle of burning methane. These continual methanometers permit not only the increase of electrification, but, in the first place, they improve the safety of transportation of the whole mine.

4. All new lamp storage rooms should be planned on a self-service basis in view of the fact that the present development of new head lamps and the necessary equipment permits such storage to be installed in 1963, according to the plan. New lamps and the necessary recharging equipment are produced in the n.p. [narodni podnik -- national enterprise] Elektrosvit, Brno.

5. All new maintenance shops systematically install shifts and undertake to introduce remote control transfer stops, install automatic trade mark stampers, indicators for the replenishing of supplies, indicators for the density of the washing liquid and others. Today, in view of the next stage, there should already be concern with the installation of computers as aids in directing the maintenance shops.

The diagram for the average division of shifts in the OKR [Ostravsko-Karvinsky Revir -- The Ostrava-Karvina Coalfields] for 1960 shows that a considerable number of changes is necessary for preparation and transportation. At the same time greater automation in these processes, mechanization, in relation to automation, is not yet resolved. According to the automation suggestions set up in the above points, the first stage would lower shifts by about 10%, i.e. by 60 shifts per 100 tons.

B. In perspective

The second stage in introducing automation in underground mines is a long-range plan and will be the result of working out the complex automation of mechanized coal mining. The workers will be primarily concerned with supervising and regulating automatic aggregators and automatized technological processes both above and below ground.

Before this step of complex automation is introduced, there will have to be a thorough study of the technology of coal mining, technology of loading the mine explosives, transportation, upkeep and further operations, so that newly developed mechanization can be related to the possibilities of introducing remote control and automatic direction. Furthermore, efforts should be made to increase the capacity of the machinery and equipment so that the investment burden of automation would be economical. The following problems have to be resolved in the second stage:

1. Remote control, possibly automatic direction of the mining machinery related to the technology of mining.

2. Remote control of the excavating machines with automatic progression according to the rock composition.

3. Remote control of loading machinery.

4. Remote control of mobile reinforcement.

5. Remote control of the reloading of returned carts.

6. Automatic mining in the shafts.

7. Automatic control of ventilation.

8. Automatic control of the condition of the electric wiring system.

9. Automatic control of climatization.

10. Automatic regulation of refining processes in relation to the required quality of the products.

11. Installation of control computers, i.e., optimalizators to

supervise refining.

12. Installation of computers to operate the whole plant.

13. Automatic indication of the necessary data for statistical reports and the direction of all of the coal fields.

14. Automatic indicator of workers in the mine, and further new problems.

The introduction of higher forms of automation necessarily presupposes increased technological knowledge of the individual processes, and increase in mining capacity and refining, so that the suggested automatic installation would be a profitable investment and an improvement in quality of economic analysis during suggestions and during the introduction of automation. The optimal introduction of automation normally requires a study done by experts on automation, technology and economy, and the various alternatives of the projects will have to be evaluated. The structure of the planning organization's employees will have to be changed in the future so that at least 15% of the employees will be working on the problem of automation and that at least a half of them are oriented toward computing and regulations in the normal working schedule.

Greater tasks of automation will be worked out by complex groups in the scope of CEMA (Council of Economic Mutual Aid) which will work mutually on individual projects as well as the development and production of the necessary automation means and equipment.

## The problem of automation in existing mines.

Mine collectives should have automation centers which would be able to make suggestions, and produce and install automation of the existing operations. (Such a center has already been set up in the Collective of the OKR on 1 January 1961) This center should make suggestions as to the action and time schedules on the introduction of automation of the individual technological processes in the plants with the cooperation of the workers of the plant in question, at which time, on the basis of preliminary studies of economizing, automation should be introduced. Automation suggestions should always treat the problem of profitibility of the investment. In general we recommend that the investments payable in more than three years should not be taken up promptly, but should first be thoroughly studied and examined, because the period from the suggestion to the realization requires a definite length of time and automatic installations are suggested in place of the old mechanized equipment. Investments expendable in less than three years can be immediately considered.

Before the very introduction of automatization, this center must examine the problem of machinery, construction, and the technological direction, and possibly the organization of work, because in many factories this investigation can determine the necessary automation at a much smaller investment rate. Furthermore, it would be appropriate to introduce automation in the existing plants in two forms: suggest such an arrangement as would allow the replacement of certain

services and supervision by the simple method of remote control and only then approach the suggested automation itself (collective centers that combine servicing of the ground installations, automation in the refineries, automation in rail transportation, etc.)

If we consider the upkeep of the automation installations in the mines, we must realize that the skill of the workers of today is inadequate, and that we shall continue to need more workers with higher technical training so that failures in the mechanisms and automatic equipment can be removed confidently and quickly. With this in mind, training in automation and courses that will generally raise the technical skill of the mine worker should already be provided today.

On the other hand, the automation districts and installations should be designed and planned in a way that will make their upkeep possible. This means that the units of automation and the control assemblies should be set up in blocks which can be quickly removed, and that failures will be automatically reported so that the maintenance crews will have a chance to change a whole block or the whole unit of automation.

Production of automation units for mine use.

The section plant of the UDK [possibly: Ustredni Delnicka Komise -- The Central Committee of the Workers] Elekrozavod Duchcov has been designated to produce automation machinery for mine use, especially items which cannot be produced serially. Unfortuantely it lacks a sufficiently developed development group, and as a supplier it lacks a planning section to work out its projects. For this reason this plant should set up the scope of its development program, insure the final processing of the project data, and, last, but not least, insure the announcement of news when the development of automation machinery has been completed. The development plan of this plant will have to be coordinated with the plans of other production plants and research institutes so that there will be no duplication of designs or, on the other hand, that on no occasion will there be a lack of some basic elements for a complex automation plan that could not be secured anywhere else. Likewise it will be necessary to make sure that all the elements of automation can be obtained at the Institute for Mining Mechanization at Ostroj Opava. Furthermore it will be necessary to designate the demands on the development of automation machinery precisely at the Industrial Automation Works, Prague, so that the demands of the mines can be accepted fully and that some elements of automation developed for other sectors could be adapted for mine use (non-explosives, etc.)

In the future it will be necessary that automation is taken into account already during the development of technological installations and machinery so that expensive automation equipment does not have to be mounted to the basic mechanical equipment; possibly that the technological machinery would not have to be changed additionally. Contact with production should be so developed that the designers would

be fully aware of all new instruments, and that once a year seminars on new automation mechanics will be conducted. These machines should be demonstrated and the designers, especially the representatives of the investors and mines, should be acquainted with their function and their intended use. Information on the development of automation elements in the sector plants of other branches should be centrally directed.

Mine collectives should conduct an investigation into the plans of the research and development institutes and insist on the fulfilment of the plans that result from immediate introduction of automation. Within the scope of the MPE an examination of these tasks that come into consideration in the further stage of introduction of automation should be assured, at which time, the complexity of the solution of the research and development tasks will always have to be secured with the approval of the planning organizations and the consumer. So far, the facts are that the research institutes themselves, of their own accord, have chosen partial solutions of complex tasks without considering a division of their decision into different stages. The result is that some partial problems are worked out, but cannot be introduced into a project due to the fact that the complex lacks certain elements (for example, non-combustible mine reflectors without a relay case for direction of detours from a moving train, the unlocking of partitions without resolving the problem of air-locks, not working out the loose materials indicators in the supply rooms, etc.)

The elements of automation will always have to be worked out in such a way as to make both installation and maintenance simple, and permit easy exchanges of parts or whole regulating circuits according to the need and with the minimal number of replacement parts. Today the research institutes will have to work with the problem of preparing further directions in providing higher forms of automation by the use of computers, and establish as their aim the introduction of optimalizers.

10,205

IMPROVEMENTS TO MEET THE PLANNED TASKS OF 1961

/Following is the translation of an unsigned article in Ceskoslovensky Hornik, Prague, 10 November 1960, page 1./

In a few weeks 1960 will end, the last year of our Second Five-year Plan - and the 15th anniversary of heroic, free work. The tasks this year were challenging in all districts, especially in the OKR (Ostrava-Karvinna Coal District), which, by its great significance in the production of coking coal, exceeds by far the average of our country.

A great majority of miners, technicians, and other workers approaches the problem of task fulfillment from the standpoint of good management. In September the fulfillment of the district's plan was still satisfactory, reaching 101%; in addition, the district had supplied our national economy with another 94,160 tons of coal since the beginning of this year. The first few days of October, however, brought an unfavorable change. Despite the fact that the situation was discussed by the secretariat of the Kraj Council of the Communist Party of Czechoslovakia in Ostrava and by the Kraj Council of Workers' Trade-Unions in the mining and power industries and that important measures were taken to improve the serious situation, it remained basically unchanged.

Many managers of plants and the leaders of plant councils of the revolutionary trade-union movement, under leadership of party organizations (for example, in the mines CSA, Dukla, Fucik, Zofie, Ludvik), accepted and understood the directions given and gave the workers proper instruction on how to achieve plan fulfillment and overfulfillment by using a systematic organization of work.

The production of these mines could have excelled even more had they not been overshadowed by the poor production of several mines which notoriously do not fulfill their plants, such as 1 Maj, Cingr, Zarubek, and others. At the same time, many miners in these mines are as good and devoted as those in mines achieving good results. Also experience with management and organization of production is transferred from successful mines to those who lag behind.

What, then, causes failures? First of all, many plants have poor systems of control by technicians, a high degree of machinery defects, frequent interruptions of production, insufficient numbers of workers in shifts due to absence, inadequate check-ups of accepted methods by the management and the plant's council of ROH, and a low level of mass political work, which can be especially observed by the high degree of unexcused absences. Further, there is a non-observance of the principles of the main paragraph, that is, the active help of complete work teams to those mines which do not fulfill their plans, despite the fact that this principle is

emphasized in the approved provisions. In this connection it is necessary to admit that the level of management is in disproportion to the large number of technicians and engineers in every mine. The reason for this stems from the fact that a relatively small number of these workers directly supervises production; most of them work on various administrative and technical tasks of plant divisions.

People are the decisive factor in production; they actively contribute to production management at production meetings. Despite continual criticism, the suggestions of workers at production meetings are not fully applied in production. This is due to a lack of follow-through by plant councils. As a result, the planning level of technical systems is decreasing and is not properly discussed at the production meetings. In many cases, the planning of technical systems was dropped, as was the preparation of long-time plans for the workplace.

From the standpoint of management and organization of production, inadequate attention is paid to workers' collectives which do not fulfill the planned tasks. In solving the problems of workplaces which lag behind the planned tasks, technicians and officials of ROH do not fully cooperate with miners and fail to explain properly the importance of and connection between fulfillment of planned tasks in five days per week as a basis for reduced working time.

A lack of plant preparedness and delays in preliminary and beginning work causes confusion among gangs of workers, who often must change their workplaces and do not know where they may work in the future; thus, the proper steps necessary for preliminary work are not taken. In many cases, plan fulfillment is met by stopping preliminary work instead of seeking for reserves in nonproductive areas.

Another cause of plan nonfulfillment in the production of coal is the poor organization of socialist competition and new developments of work methods; for these, plant councils should be chiefly blamed. The organization of socialist competition is to a great extent formalistic. It is erroneously mistaken for the movement of pledges. A principle of the systematic evaluation and organization of socialist competition, the competition between two individuals, collectives, or plants, is overlooked. The main shortcoming in organization of the competition is the fact that it overlooks production bottlenecks.

In evaluating competition, all the attention is paid to collectives which fulfilled and overfulfilled the planned tasks, while insufficient care is given to analyzing the reasons and taking necessary steps to help those collectives which did not fulfill their tasks. This is confirmed by the fact that since the beginning of this year nine mines produced 386,990 tons of coal in addition to their plans, while on the other hand eleven mines caused a shortage of 249,920 tons of coal in the Ostrava-Karvinna fields.

This means that trade-union and economic authorities do not pay systematic attention to those collectives and workers participating in socialist competition, do not regularly evaluate it, and do not create conditions for its successful fulfillment. Socialist pledges are

insufficiently directed to the development of new methods of work, such as Nikolaj Mamaj's method, Seifert's method and comrade Gaganova's method, as the best way of helping lagging work centers.

On the whole it can be said that both economists and plant councils do not make periodical evaluations of socialist pledges, and do not discuss their possible improvement in the future if they are fulfilled or their rearrangement if conditions of workplaces change.

This analysis of shortcomings has been based on the Ostrava-Karvinna Fields but it is hoped that it will help all economists and officials of ROH in other districts to learn a good lesson from these shortcomings and errors. The trade-union organization in the Ostrava-Karvinna fields plans to fight for their elimination.

To secure this, not only in OKR but also in all other districts which fulfill their tasks unevenly, it is necessary to call extra sessions of kraj council presidiums and plant council meetings and, with the participation of plant managers, to discuss and analyze the situation in every plant, and to decide what will be done by the management and plant councils in every month, starting in November. Wherever the tasks of coal production are not fulfilled, officials of ROH and technicians should be made responsible to investigate why this is happening and to suggest measures to improve the situation. On the basis of this, concrete and detailed "harmonograms" will be made, describing exact procedures in the organization of work. These "harmonograms" should be discussed with the whole collective of workers and their fulfillment thoroughly checked.

Among the most important tasks will be analyzing socialist competition within the plant and the fulfillment of pledges of individual workers' collectives. In those plants where pledges are not being fulfilled or have been already fulfilled, it will be necessary -- according to the local situation -- to reevaluate them and discuss with individual collectives the proclamation of new pledges in honor of the 43rd anniversary of the Great October Socialist Revolution and the 40th anniversary of the foundation of the Communist party of Czechoslovakia. We must get rid of the present system of competition and pledge fulfillment evaluations of only a few collectives and organize everyday evaluations at all workplaces according to Mamaj's method. Sectional organizers will be asked to report the actual situation at the workplace as well as the requirements of the collectives to plant councils. Those who pay little or no attention to the suggestions of miners will be held responsible for it. Management will be requested to analyze and report daily on the status of socialist competition. It will also be necessary to expand short-term competition to secure successful adoption of reduced working time, using the slogan: "To fulfill tasks in five days" in honor of the 43rd anniversary of the Great October Socialist Revolution.

Another thing which must be done is reevaluation of the all-plant pledges proclaimed at the beginning of 1960 and, on the basis of the new pledges of collectives, to proclaim all-plant pledges in honor of the 43rd anniversary of the Great October Socialist Revolution. These new pledges, however, must be submitted for approval to the workers at special meetings.

Further, it will be necessary to prepare to work on all-plant conditions for socialist competition in 1961 with respect to tasks connected with the adoption of reduced working time on a trial basis.

There is no doubt that the measures taken in the OKR to improve the situation in coal production will meet with the full understanding of miners, not only in the OKR but also in all other districts which do not fulfill their plans. This is because the miners want now, as always, to confront with tasks of 1960 with honor and joyfully begin the first year of our Third Five-year Plan.

LIST OF CZECHOSLOVAK PETROLEUM PRODUCTS

/Following is the translation of a product list in Ropa a uhlie (Petroleum and Coal), No 4, Bratislava, April 1961, supplement inserted between pages 112-113./

GROUP J II

Appearance and general properties:

Conservation lubricant L has a dark green color and vaseline-like character.

| Quality Specifications | | Conservation Lubricant L CSN 65 6855 |
|---|---|---|
| Point of liquefaction, °C, | not below | 55 |
| Kinematic viscosity at 70°C cSt, | not below | 22 (3.1 °E) |
| Test for protection against corrosion with low-carbon steel, 48 hours at 50°C | | satisfactory |
| Neutralization coefficient, acidity of lubricant mg KOH/g, | not above | 2.0 * |
| Neutralization coefficient, reaction of a water sample | | neither acid nor basic |
| Content of water, % by weight, maximum | | 0.05 |
| Content of physical impurities, % by weight, | not above | 0.03 |
| Ash, | not above | 0.05 |
| Accelerated test for corrosion: with steel 12 040, according to CSN 42 0075, or with steel 12 050, according to CSN 42 0075, 48 hours at 100°C | | negative |
| with copper according to CSN 42 3003 48 hours at 100°C | | negative |

* Maximum neutralization coefficient and the acidity of lubricant used in production of 0.1 mg of KOH/g.

Special Conservation Products Designated For Particular Application and Specified Plants

These special products are basically mineral oils or solid lubricants with admixtures for increasing protection against corrosion, or treated for the purpose for which they are meant.

Their types and application:

Conservation oil TB is a mixture of 65% of Conservation oil OK-40 with 35% cleaning benzine according to CSN 65 6542. It is designated for lubrication and conservation of screws on the CSD railroads. The product should be treated as an inflammable of the first class.

| Physical-chemical Properties | | Conservation lubricant P CSN 65 6856 | Conservation lubricant C CSN 65 6856 |
|---|---|---|---|
| Neutralization coefficient of lubricant, acidity mg/KOH/g | maximum | 0.1 | 0.1 |
| Neutralization coefficient of lubricants, reaction of a water sample | | neither acid nor basic | |
| Content of water, % by weight, | maximum | traces | |
| Content of physical impurities, % by weight, | maximum | 0.025 | 0.025 |
| Ash, % by weight | maximum | 0.07 | 0.05 |
| Accelerated test for corrosion: with steel 12 040, according to CSN 42 0075, or with steel 12 050 according to CSN 42 0075 48 hours at 100°C | | negative | negative |
| with copper according to CSN 42 3003; 3 hours at 60°C | | negative | - |
| with copper according to CSN 42 3003; 6 hours at 100°C | | - | negative |

Conservation Lubricants With Admixtures

Conservation lubricants with admixtures are mostly petroleum products made from mineral oils, petrolatum, and ozocerite and containing admixtures which enhance the protective properties.

Their types and application:

Conservation lubricants with admixtures are designated for long-term and especially effective conservation of metal products.

Conservation lubricant L, mark VA-KL-55 contains at least 10% machine lanolin. It is used for especially effective conservation of metal products, all kinds of metals, and products galvanically treated and partly varnished in long-term storage and transportation, where especially great demands are placed on the protective properties of lubricants. In longer contact with certain nonmetallic materials (e.g., electric insulators) this lubricant may affect them unfavorably.

It is applied in a warm condition by rubbing, spraying, or painting.

Conservation lubricant RL is made from a refined mixture of mineral oil, petrolatum, and ozocerite, with an admixture of machine

lanolin. This conservation lubricant is designated for long-term conservation of roller bearings in manufacturing plants.

Conservation lubricant RL is of a light yellow color and contains at least 12.5% technical lanolin to enhance the protective properties.

Quality Specifications:

| | | Conservation oil TB TP-D-42-452-59 |
|---|---|---|
| Density at 20°C | | 0.850-0.880 |
| Viscosity at 20°C, °E | | 5-20 |
| Point of solidification | | -20 |
| Ash, % by weight, minimum | | 0.05 |

| | | Conservation lubricant RL TP-D-42-451-59 |
|---|---|---|
| Point of liquefaction °C | not below | 55 |
| Kinematic viscosity at 100°C | c St | 10-15 |
| Test for protection against corrosion with low-carbon steel, 48 hours at 50°C | | satisfactory |
| Neutralization coefficient mg KOH/g, not above | | 2.0 * |
| Neutralization coefficient, reaction of a water sample | | neither acid nor basic |
| Content of water, % by weight | not above | 0.05 |
| Content of physical impurities, % by weight | not above | 0.03 |
| Ash, % by weight | not above | 0.05 |
| Accelerated test for corrosion: | | |
| with steel 12 040 according to CSN 42 0075, or with steel 12 050 according to CSN 42 0075, 48 hours at 100°C, | | negative |
| with copper according to CSN 42 3003, 48 hours at 100°C | | negative |

* Neutralization coefficient and the acidity of lubricant before addition of technical lanolin not above 0.1 mg mg KOH/g.

## Ten Useful Suggestions for Lubrication of Tractors

1 -- Carefully follow the instructions of the manufacturer during the break-in period of the machine. For lubrication use only the recommended kind of tractor oil.

2 -- Check the level of oil every day and add oil when necessary. Do not overfill.

3 -- Change oil regularly, in a correctly and at the prescribed intervals.

4 -- Check and clean the oil filter.

5 -- Air filter should be cleaned and filled with oil daily.
6 -- Keep ignition or firing mechanism in good working order.
7 -- Keep carburetor or injector clean.
8 -- Control correct temperature of water in cooling system; flush the whole system when necessary.
9 -- Transmission cases should be filled only with the recommended kind of transmission fluid. The fluid should be added and exchanged at prescribed intervals, and the time of year should be taken into account.
10 -- Do not neglect the timely and thorough lubrication of all parts of the chassis with recommended lubricants.

| Quality Specifications: | | Cable oil VN CSN 65 6846 |
|---|---|---|
| Density, 20/4°C | minimum | 0.910 |
| Kinematic viscosity at 50° cSt | minimum | 305 (40°E) |
| Kinematic viscosity at 100° cSt | maximum | 25 (3.5°E) |
| Point of solidification, °C | not above | -8 |
| Point of inflammation in an open crucible, °C | not below | 220 |
| Neutralization coefficient, acidity in mg KOH/g | maximum | 0.10 |
| Hydroxide test | maximum | 2 |
| Content of ash in % | maximum | 0.01 |
| Accelerated test for corrosion, 100 °C/3 hours for copper | | negative |
| Isolation resistance: | | |
| at 100°C ohm cm in the condition in which material is delivered | minimum | $1.0 \times 10^{12}$ |
| at 100°C after artificial aging | minimum | $0.3 \times 10^{12}$ |
| Coefficient of losses: | | |
| in delivered condition at 70°C in % | minimum | 0.7 |
| in delivered condition at 100°C in % | minimum | 2.0 |
| at 100°C after artificial aging in % | maximum | 6.5 |

Condenser Oils

Condenser oils are refined mineral oils with a low solidification point and suitable electro-insulating properties.

Their types and application:
Condenser oils are designated for use in condensers. Only one type is manufactured described as condenser oil.

Appearance and general properties:
Condenser oil is of a light yellow color, clear, waterless, and without physical impurities. A sample of this oil at a temperature of 5°C should appear quite clear in a column of 30 - 40 mm.

Quality Specifications:

| | | Condenser oil CSN 65 6847 |
|---|---|---|
| Density at 20°C | maximum | 0.920 |
| Kinematic viscosity at 20°C, cSt | maximum | 40 (5.3°E) |
| Point of solidification, °C | not above | -40 |
| Point of inflammation in a closed crucible PM, °C | minimum | 130 |
| Neutralization coefficient of oil, acidity mg KOH/g | maximum | 0,05 |
| Neutralization coefficient of a water sample, reaction | | neither acid nor basic |
| Hydroxide test | maximum | 1 |
| Coefficient of saponification, mg KOH/g | maximum | 0,15 * |
| Test for corrosive sulphur | | negative |
| Oxidation coefficient | maximum | 0,15 |
| Ash, % by weight | maximum | 0,008 |
| Electrical constancy after drying at 105°C/30 min; kV/cm | minimum | 200 (55 kV/3 mm) |
| Loss factor tg d at 20°C | | $12x\ 10^{-4}$ |
| Dielectric constant E at 20°C | | 2,1 - 2,25 |

* An informative value only.

Insulation Oils

Transformer Oils

Transformer oils are refined mineral oils characterized by their chemical stability, a low solidification point and suitable electro-insulating properties.

Their types and application:

Transformer oils are designated for use in electric machines and equipment as insulating and cooling fluids. Only one type is manufactured and is described as transformer oil BTS. It is used as a filling in transformers, switches, power condensers, and other high tension equipment.

Appearance and general properties:

Transformer oils are light yellow, clear, waterless, and without physical impurities. A sample of this substance at a temperature of 5°C should appear quite clear in a column of 30 - 40 mm.

Quality Specifications:

| | | Transformer oil BTS CSN 65 6845 |
|---|---|---|
| Density at 20°C | maximum | 0.900 |
| Kinematic viscosity: | | |
| at 20°C, cSt | maximum | 40 (5.3°E) |
| at -30°C, cSt | maximum | 3800 (500°E) |
| Point of solidification, °C | not above | -40 * |
| Point of inflammation in a closed crucible PM, °C | minimum | 135 |
| Neutralization coefficient of the oil, acidity, mg KOH/g | maximum | 0.05 |
| Neutralization coefficient of a water sample, reaction | | neither acid nor basic |
| Hydroxide test | maximum | 2 |
| Coefficient of saponification, mg KOH/g | maximum | 0.15 ** |
| Test for corrosive sulphur | | negative |
| Oxidation coefficient | maximum | 0.15 |
| Ash, % by weight | maximum | 0.008 |
| Electrical constancy: | | |
| a) in delivered condition kV/cm | minimum | 92 (25 kV/3 mm) |
| b) after drying at 105°C/30 min. kV/cm | minimum | 200 (55 kV/3 mm) |
| Loss factor tg at 20°C | maximum | 1.5 ** |
| Dielectric constant at 20°C | | 2.1 - 2.4 ** |

* A higher point of solidification is tolerated when viscosity at -30°C according to CSN does not exceed 3800 cSt (500°E).

** As an informative value only.

High-tension Cable Oils

High-tension oils are refined mineral oils, predominantly naphthenic and with suitable electro-insulating properties.

Their types and application:

High-tension cable oils are designated for impregnation of paper insulators of power cables for tension up to 35 kV. Only one type is manufactured, bearing the description Cable Oil VN.

Appearance and general properties:

Cable oil VN is a reddish-brown, clear liquid without apparent traces of water and physical impurities. The appearance is examined in a cylinder of colorless glass, with a diameter of approximately 30 mm at a temperature of 20°C.

10,132

- END -